









## "PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MSME CLUSTERS IN INDIA"

To develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in the selected energy-intensive MSME clusters, United Nations Industrial Development Organization (UNIDO) in collaboration with Bureau of Energy Efficiency (BEE) is implementing a project titled "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India" funded by Global Environment Facility (GEF) and co-financed by Ministry of Micro, Small and Medium Enterprises (MoMSME) and Ministry of New and Renewable Energy (MNRE).

# Installation of VFD to the existing ghee process pump in a dairy industry

## **Objective**

To minimize the energy consumption by the ghee process pump by regulating its speed as per requirement.

### **Implementation**

Installed a variable frequency drive (VFD) to the existing ghee process pump to reduce the energy consumption.

## **Principle**

Ghee process pump motor in a dairy unit is subjected to frequent part load operation due to variation in load (or quantity).

VFD is a specific type of adjustable-speed drive which controls the speed of motor and the quantity / flow of material according to the requirement, resulting in reduction in power consumption resulting in energy saving.











### **Unit Profile**

Dudhsagar dairy is a unit of the Mehsana District Cooperative Milk Producers' Union Ltd. The dairy was established in year 1960. Current processing capacity of the dairy is 25 lakh litre per day.



#### Benefits

- Improved life of the pump
- Better control of the operation
- Reduction in energy consumption and energy costs

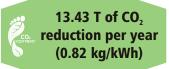
#### **Outcomes**







₹ 1,27,764 of annual cost saving





## **Replication Potential**

In all the dairy units with variable load on pumps

#### **Cost Economics**

<b>Energy savings per hour</b>	2.6 kWh
Energy savings per day	46.8 kWh (18 hr/day)
<b>Energy saving per annum</b>	16,380 kWh (350 days/yr)
Cost savings per year	₹ 1,27,764 (₹ 7.8/kWh)
Investment cost	₹ 82,000
Simple Payback period	8 months



#### **Calculation**

Energy savings per annum (kWh/year) = (Energy consumption before implementation- after implementation, kWh/day) \* no of working days/year

#### **Contact details:**

#### Unit

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